

Serial No. 10/705,174
Docket No. 8681RCR2
Response date September 27, 2005
Reply to Office Action of June 27, 2005

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application.

Listing of the Claims

1. (Currently Amended) A filter for providing potable water, comprising:
 - (a) a housing having an inlet and an outlet; and
 - (b) a filter material disposed within said housing formed at least in part from a plurality of mesoporous activated carbon filter particles and particles selected from the group consisting of mesoporous activated carbon filter particles coated entirely with a cationic polymer, mesoporous activated carbon filter particles partially coated with a cationic polymer, and mixtures thereof;
 - (c) wherein the filter is operable to remove microorganisms.
2. (Original) The filter claim 1, wherein the cationic polymer is selected from the group consisting of: polyvinylamine, poly(N-methylvinylamine), polyallylamine, polyallyldimethylamine, polydiallylmethylamine, polydiallyldimethylamine, polydiallyldimethylammonium chloride, polyvinylpyridinium chloride, poly(2-vinylpyridine), poly(4-vinylpyridine), polyvinylimidazole, poly(4-aminomethylstyrene), poly(4-aminostyrene), polyvinyl(acrylamide-co-dimethylaminopropylacrylamide), polyvinyl(acrylamide-co-dimethyaminoethylmethacrylate), polyethyleneimine, polylysine, DAB-Am and PAMAM dendrimers, polyaminoamides, polyhexamethylenebiguanide, polydimethylamine-epichlorohydrine, aminopropyltriethoxysilane, N-(2-aminoethyl)-3-aminopropyltrimethoxysilane, N-trimethoxysilylpropyl-N, N, N-trimethylammonium chloride, bis(trimethoxysilylpropyl)amine, chitosan, grafted starch, the product of alkylation of polyethyleneimine by methylchloride, the product of alkylation of polyaminoamides with epichlorohydrine, cationic polyacrylamide with cationic monomers, dimethyl aminoethyl acrylate methyl chloride (AETAC), dimethyl aminoethyl methacrylate methyl chloride (METAC), acrylamidopropyl trimethyl ammonium chloride (APTAC), methacryl amodopropyl

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trimethyl ammonium chloride (MAPTAC), diallyl dimethyl ammonium chloride (DADMAC), ionenes, silanes and mixtures thereof.

3. (Original) The filter of claim 1, wherein the cationic polymer is selected from the group consisting of: polyarninoamides, polyethyleneimine, polyvinylamine, polydiallyldimethylammonium chloride, polydimethylamine-epichlorohydrin, polyhexamethylenebiguanide, poly-[2-(2-ethoxy)-ethoxyethyl-guanidinium] chloride.

4 (Original) The filter of claim 1, wherein at least a portion of the mesoporous activated carbon filter particles, the mesoporous activated carbon filter particles coated entirely with a cationic polymer, or the mesoporous activated carbon filter particles partially coated with a cationic polymer are further coated with silver or a silver containing material.

5. (Original) The filter of claim 1, wherein the sum of the mesopore and the macropore volumes of said plurality of mesoporous activated carbon filter particles is between about 0.2 mL/g and about 2 mL/g.

6. (Original) The filter of claim 1, wherein said plurality of mesoporous activated carbon filter particles has a BRI of greater than about 99% and a VRI of greater than about 90%.

7. (Original) The filter of claim 1, wherein said filter material has a F-BLR of greater than about 2 logs, and a F-VLR of greater than about 1 log.

8. (Original) The filter of claim 1, wherein said filter material has a single-collector efficiency, η , of between about 0.005 and 0.25, and a filter coefficient, λ , between about 40 m^{-1} and about $14,000\text{ m}^{-1}$.

9. (Original) The filter of claim 1, wherein said plurality of mesoporous activated carbon filter particles are basic and have a point of zero charge between about 9 and about 12, an ORP between about 290 mV and about 175 mV.

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10. (Currently Amended) A filter for providing potable water, comprising:

(a) a housing having an inlet and an outlet; and

(b) a filter material disposed within said housing formed at least in part from a plurality of mesoporous activated carbon filter particles and other materials selected from the group consisting of activated carbon powders, activated carbon granules, activated carbon fibers, zeolites, activated alumina, activated magnesia, diatomaceous earth, activated silica, hydrotalcites, glass, polyethylene fibers, polypropylene fibers, ethylene maleic anhydride copolymer fibers, sand, clay and mixtures thereof,

wherein at least a portion of the other materials are coated with a material selected from the group consisting of silver, a silver containing material, a cationic polymer and mixtures thereof;

(c) wherein the filter is operable to remove microorganisms.

11. (Original) The filter of claim 10, wherein at least a portion of the mesoporous activated carbon filter particles are coated with a cationic polymer.

12. (Original) A kit comprising:

i) a filter to claim 1; and

ii) a package for containing the filter; and wherein either the package or the filter housing comprises information that the filter or filter material provides: bacterial removal; virus removal; microbial removal; killing of bacteria, killing of viruses, killing of microbials, or any combination of these.

13. (Original) A kit comprising:

i) a filter according to claim 10; and

ii) package for containing the filter; and wherein either the package or the filter housing comprises information that the filter or filter material provides: bacterial removal; virus removal; microbial removal; killing of bacteria, killing of viruses, killing of microbials, or any combination of these.

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14. (Original) The filter of claim 4 where in the cationic polymer is selected from the group consisting of: polyaminoamides, polyethyleneimine, polyvinylamine, polydiallyldimethylammonium chloride, polydimethylamine-epichlorohydrin, polyhexamethylenebiguanide, poly-[2-(2-ethoxy)-ethoxyethylguanidinium] chloride.